

## CLAIMS

- 1     1.     A circuit for operating a transistor as a rectifier, said circuit comprising:  
2             a transistor;  
3             a control circuit operating said transistor as a function of the Vds voltage potential of  
4     said transistor and a Vds indication signal during a particular cycle.
  
- 1     2.     A circuit as recited in claim 1 wherein said Vds indication signal is the on-time  
2     duration of said Vds voltage potential in a previous cycle and the on-time and off-time  
3     duration of a subsequent cycle is adjusted as a function of said on-time duration of said Vds  
4     voltage potential in said previous cycle.
  
- 1     3.     A circuit as recited in claim 1 wherein said Vds indication signal is the off-time  
2     duration of said Vds voltage potential in a previous cycle and the on-time and off-time  
3     duration of a subsequent cycle is adjusted as a function of said off-time duration of said Vds  
4     voltage potential in said previous cycle.
  
- 1     4.     A circuit as recited in claim 1 wherein said Vds indication signal is the on-time  
2     duration of said Vds voltage potential in a present cycle and the on-time and off-time  
3     duration of a subsequent cycle is adjusted as a function of said on-time duration of said Vds  
4     voltage potential in said present cycle.

1 5. A circuit as recited in claim 1 wherein said Vds indication signal is the off-time  
2 duration of said Vds voltage potential in a present cycle and the on-time and off-time  
3 duration of a subsequent cycle is adjusted as a function of said off-time duration of said Vds  
4 voltage potential in said present cycle.

1 6. A circuit as recited in claim 4 wherein a reference signal is provided and said control  
2 circuit adjusts said reference signal upward when said detected Vds voltage is at a diode  
3 voltage potential for a duration greater than a first predefined time period.

1 7. A circuit as recited in claim 5 wherein said control circuit adjusts said reference  
2 signal downward when said detected Vds voltage is at a diode voltage potential for a  
3 duration less than a second predefined time period.

1 8. A circuit as recited in claim 4 wherein a ramp voltage is provided and when the  
2 voltage potential of said ramp voltage and said reference voltage are at the same level, said  
3 transistor is operated.

1 9. A circuit as recited in claim 12 wherein said control circuit adjusts said reference  
2 signal upward when said detected Vds voltage is at a diode voltage potential for a duration  
3 greater than a first predefined time period.

1 10. A circuit as recited in claim 12 wherein said control circuit adjusts said reference  
2 signal downward when said detected Vds voltage is at a diode voltage potential for a  
3 duration less than a second predefined time period.

1 11. A circuit as recited in claim 12 wherein operating said transistor to turn off said  
2 transistor.

1 12. A method for operating a transistor as a rectifier, comprising the steps of:  
2 detecting the Vds voltage of a transistor;  
3 operating said transistor as a function of the duration of said detected Vds voltage in  
4 the range of a diode voltage potential and a Vds indicator signal during a particular cycle.

1 13. A method as recited in claim 12 wherein in said operating step, said transistor is  
2 operated at a later point in time in a subsequent cycle if said detected Vds voltage is at a  
3 particular diode voltage potential for duration greater than a first predefined time period.

1 14. A method as recited in claim 12 wherein in said operating step, said transistor is  
2 operated at an earlier point in time in a subsequent cycle if said detected Vds voltage is at a  
3 particular diode voltage potential for duration less than a second predefined time period.

1 15. A method as recited in claim 12 wherein a reference voltage is provided and said  
2 reference voltage is adjusted as a function of said detected Vds voltage.

1 16. A method as recited in claim 15 wherein said transistor is operated when said  
2 reference voltage and said detected Vds voltage of said transistor are in the same voltage  
3 potential range.

1 17. A method as recited in claim 16 wherein said reference voltage is adjusted upward  
2 when the Vds voltage of said transistor is at a diode voltage for a duration greater than a first  
3 predefined time period.

1 18. A method as recited in claim 16 wherein said reference voltage is adjusted downward  
2 when the Vds voltage of said transistor is at a diode voltage for a duration less than a second  
3 predefined time period.

1 19. A method as recited in claim 31 wherein a ramp voltage is provided and said  
2 reference voltage is adjusted as a function of said detected Vds voltage.

1 20. A method as recited in claim 19 wherein said transistor is operated when said  
2 reference voltage and said ramp voltage are in the same voltage potential range.